APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/532,510	03/21/2000	Brian Joseph	ALA-106	6796

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Barry R Lipsitz
Law Offices Of Barry R Lipsitz
755 Main Street Building 8
Monroe, CT   06468

EXAMINER
LE, UYEN T

ART UNIT	PAPER NUMBER
2171	

DATE MAILED: 10/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

	Application No.		Applicant(s)
Office Action Summary	09/532,510		JOSEPH, BRIAN
	Examiner		**Art Unit**	
	Uyen T Le		2171	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1.   Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention because claim 5, line 4 "the binary decision" lacks antecedent basis.

The art rejection of claim 5 is applied as best understood in light of the rejection under 35 U.S.C. 112, second paragraph discussed above.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claims 16-18, 20-23, 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Dent et al (US 5,187,675) provided by the applicant.

Regarding claim 16, Dent discloses a method of determining an address for a result of a binary operation when Dent shows that the output of the final stage is Vmax (see the abstract, Figure 1). The address of the output clearly has to be determined for the system to locate. The claimed step (a) is met by the fact that each comparator of each stage in the method of Dent takes two inputs and produces one output. The output

is clearly a binary decision representative of a local address of a selected data value within the pair of input values since the output is selected from the two inputs at each comparator in each stage. The claimed step (b) is met when Dent shows which input is selected by each comparator at each stage (see Figure 1).

Regarding claim 17, the claimed step (c) has to be present for the method of Dent to operate.

Regarding claim 18, clearly the computation stage 3 of Dent contains the value of the result of the binary operation and its address within the array of values.

Regarding claim 20, Dent discloses that the binary operation is a maximum finding operation when Dent shows that the result is Vmax.

Regarding claim 21, Dent discloses a method for finding a specific value in an array of data values as claimed (see the abstract, Figure 1). The claimed step (a) is met when Dent shows the comparators grouped in computation stages 1-3. Each computation stage i clearly has a number of decision units equal to $N/2^i$ where N is the size of the array. The claimed step (b) is met when Dent shows that each comparator produces an output. Dent shows that the last stage determines the specific value Vmax.

Regarding claim 22, Dent discloses that each decision unit receives a pair of input values and generates a selected data value as output (see Figure 1).

Regarding claim 23, clearly the selected data value is the result of a binary operation performed on the pair of input values.

Regarding claim 25, clearly the binary operation is a maximum finding operation since the output is Vmax.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Dent et al (US 5,187,675) provided by the applicant, in view of Weigand et al (US

5,285,185).

Regarding claim 1, Dent discloses a system for locating a specific value (see the

abstract, Figures 1-4). Note the plurality of decision units grouped in successive

computation stages 1-3 in Figure 1. Clearly each data value in the array of N data

values is W bit wide. Dent clearly shows that each decision unit receives a pair of input

values. Each input has to have a data value and an address for the system to locate

and compare. Although Dent does not explicitly show that the input value also contains

a partial address, it is well known in the art as shown by Weigand to use partial

addresses to reduce the address space and processing time (see the abstract, column

2, lines 43-54, column 4, lines 61- column 5, line). Therefore, it would have been

obvious to one of ordinary skill in the art to use the partial address as taught by

Weigand while implementing the system of Dent in order to save space and processing

time. The claimed "each decision unit generates a value...contains the specific value" is

met when Dent shows that stage 3 contains Vmax.

Regarding claim 2, Dent discloses a binary operator and a multiplexer (see Figure 1).

Regarding claim 3, although Dent shows that the system selects the maximum value of the pair of data values, it would have been obvious to one of ordinary skill in the art to modify the system to select the minimum value in order to suit users' needs.

Regarding claim 4, Dent shows that the binary operator selects the maximum value of the pair of data values contained in the pair of input values since the output of stage 3 is Vmax (see Figure 1).

Regarding claim 5, clearly a storage element has to be present for the system of Dent to store the results of the computation as shown in Figures 1-4.

Regarding claims 6, 7, although Dent and Weigand do not specifically show which bits represent the partial address, since users' systems have different configuration, it would have been obvious to one of ordinary skill in the art to include the claimed features depending on users' system configuration.

Regarding claims 8, 9, Dent discloses that the number of computation stages K is related to the size N by the formula $K = \log_2 N$ and the number of decision units at a computation stage i is equal to $N/2^i$ wherein $1 < = I < = K$ when Dent shows that each comparator at each stage takes 2 inputs and produces one output as shown in Figure 1.

Regarding claims 10, 11, although Dent and Weigand do not specifically show the order of the address bits and the specific value bits, since users' systems have different configuration , it would have been obvious to one of ordinary skill in the art to include the claimed features depending on users' system configuration.

Regarding claim 12, Dent discloses an apparatus for obtaining information on a specific value within a pair of inputs (see Figure 1). The claimed binary operator and multiplexer are met by the comparators shown in Figure 1. The input data values are clearly compared and the output is clearly representative of a local address of the specific value since each value has to be locally stored. Although Dent does not explicitly show that the input value also contains a partial address, it is well known in the art as shown by Weigand to use partial addresses to reduce the address space and processing time (see the abstract, column 2, lines 43-54, column 4, lines 61- column 5, line). Therefore, it would have been obvious to one of ordinary skill in the art to use the partial address as taught by Weigand while implementing the apparatus of Dent in order to save space and processing time. The claimed specific data value generated as output along with its partial address based on the binary decision merely reads on the output of each of the comparators in Figure 1.

Regarding claim 13, a storage element has to be present for the system of Dent to store the results.

Regarding claim 14, although Dent does not explicitly show that the binary operator is a minimum operator, it would have been obvious to one of ordinary skill in the art to modify the comparators 11, 12, 13 so that the binary is a minimum operator in order to accommodate user's requirements.

Regarding claim 15, Dent discloses that the binary operator is a maximum operator when Dent shows comparators 11, 12, 13 outputting Vmax.

4.   Claims 19, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Dent et al (US 5,187,675) provided by the applicant.

Regarding claim 19, although Dent does not specifically show a minimum finding

operation, since the method is using comparators, it would have been obvious to one of

ordinary skill in the art to modify the comparators to find the minimum value depending

on user's needs.

Regarding claim 24, although Dent does not explicitly show that the binary

operation is a minimum finding operation, since the method is using comparators, it

would have been obvious to one of ordinary skill in the art to modify the method for a

minimum finding operation in order to suit user's needs.

Conclusion

5.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Hingorani et al (US 4,821,290) teach a decoder for digital signal codes wherein a binary

tree search system locates video data using partial addresses.

Lauer et al (US 5,455,825) teach a tag-based scheduling system for digital

communication switch using comparators.

Farnbach (US 4,100,532) teaches a digital pattern triggering circuit using arithmetic

comparators.

Gormish et al (US 5,710,562) teach compressing arbitrary data wherein only partial

addresses are stored with each state.

6.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Uyen T Le whose telephone number is 703-305-4134.

The examiner can normally be reached on M-F 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Safet Metjahic can be reached on 703-308-1436. The fax phone numbers

for the organization where this application or proceeding is assigned are 703-746-7239

for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is 703-305-

3900.

Uyen Le
October 20, 2002